2010 Washington County HCP
Scope of Work

Project Title: Evaluation of Southwest Willow Flycatcher Nesting Success along the lower Virgin River, Washington County, Utah.

Project Number: VI.10.02

Cost: $30,000

Lead Agency: UDWR

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Relationship to Recovery Program/Category: At the present time, complete recovery elements for Southwest Willow Flycatcher are not available. Based on the draft recovery action plan outline this project would address the following objectives:

1) Objective 1: Complete description of baseline (current 2007) SWWF conditions
   a) Describe population distribution (breeding locations, pre/post-breeding foraging areas, migration habitats)
      (1) Main stem Virgin River
          Describe key breeding and migration habitats, periods of use and limits of distribution.
      (2) Tributaries
2) Objective 3: Determine ecological factors limiting abundance of native species. Information on SWWF in the Virgin River basin is limited to locations of observations and known breeding habitat. Though the general life history of the species is known, specific factors limiting the species in the Virgin River basin have not been identified. Research needs and actions necessary to identify limiting factors and appropriate mitigation factors are identified below. New research needs may be identified as new information is obtained.
   a) Characterize/quantify preferred breeding habitat

Measure and classify habitat characteristics at Seegmiller and Riverside marsh breeding areas.

b) Characterize/quantify preferred dispersal and migratory habitat
(i) Measure and classify habitat characteristics where birds are observed outside of breeding areas.
(ii) Expand surveys to include post-fledging period.

c) Characterize / quantify factors limiting reproductive success
Other SWWF breeding areas have a high incidence of predation (mammalian) and Brown-headed Cowbird parasitism significantly limiting reproductive success. Breeding pairs in Seegmiller and Riverside marshes should be monitored to determine breeding success and factors contributing to failure.

d) Disturbance (construction, urban interface, trails, parks, vehicles, etc.)

The rate of growth and development in Washington County is among the highest in the nation. As populations expand, human encroachment on the riparian zone increases. This encroachment is not limited to municipal infrastructure alone, but includes associated human activities (i.e. bike trails, parks, and vehicles).
(1) Identify different types of disturbances that occur on the landscape.
(2) Evaluate and quantify the impacts of disturbances on SWWF populations.
ii) Provide recommendations for ameliorating impacts from disturbance.

e) Identify and quantify other limiting factors

This project will address Program needs by identifying potential factors limiting reproductive success and fledging of southwest Willow Flycatchers. This is a new project identified proposed by the flycatcher technical team.

Project Background Information: In 2005 the Virgin River Program Administration Committee agreed to incorporate Southwest Willow Flycatcher in the Program. The Flycatcher Technical Committee (FTC) suggested that information was needed regarding flycatcher occupied and potential habitat, and identifying factors limiting flycatcher distribution in the Virgin River system. Primary factors limiting numbers and success of nesting southwestern willow flycatchers include the availability of habitat (Johnson et al. 1999), nest predation, and brood parasitism by Brown-headed Cowbirds (Whitfield et al. 1999, Sedgwick and Iko 1999).

Objectives identified as priorities for SWWF include (Recovery Plan and Sedgwick 2000),

- improved knowledge of historic and current distribution and habitats to understand causes and patterns of decline;
- more detailed understanding of direct human impacts such as water development, disturbance, recreation, and pesticide use;
- studies of the effects of exotic vegetation on flycatcher reproductive success and prey abundance;

- because many populations of *E. t. extimus* are small, studies of the effects of small population size and reduced genetic variation on population viability are needed;
- determination of how serious a threat cowbird parasitism is, how it varies with landscape, habitat, and distribution of cattle, and whether trapping should be widely used as a temporary strategy to effect recovery;
- Complete description of baseline (current 2007) SWWF conditions within the Virgin River basin;
- Protect and enhance values for conservation and recovery of native species. Protect and enhance riparian corridor and 100-year flood plain habitat;
- Determine ecological factors limiting abundance of native species.
- Monitor habitat conditions and populations of native species.
- Improve education and communications on resource issues.

Currently Southwest Willow Flycatchers are known to nest in two locations along the Virgin River in southwest Utah, however, there have been no studies examining nesting and reproductive success in these populations. Both areas are somewhat isolated marsh complexes adjacent to the Virgin River, in urban and agricultural areas, and may be susceptible to a high incidence of predation and cowbird parasitism.

Goals, Objectives and End Product(s): The program goal is to establish additional breeding habitat in the Virgin River Basin, and determining nesting success is important to prevent these areas from becoming population sinks. Characterization of nesting sites will insure that restoration focuses on improving specific flycatcher nesting requirements. Nesting success will help to evaluate and design the size and configuration of habitat restoration patches. This project is proposed for three years. A final technical report on willow flycatcher nesting and recommendations for enhancing flycatcher habitat will be completed followed the 2010 field season.

Recommendations: In the first year of this study (2008), ten nests were located and monitoring to determine clutch size, timing, habitat selection, and fledging success. Seven nests successfully fledged young flycatcher and only one nest showed evidence of cowbird parasitism. Three nests did not successfully produce fledglings for various reasons. In July, towards the end of the nesting season, tamarisk beetles moved into nesting habitat at Seegmiller and Riverside Marsh resulting in vast defoliation of habitat and nesting trees. If defoliation occurs earlier in the nesting season it may have the potential to negatively influence nesting success by increasing exposure of nests and hatchlings. The timing and influence of tamarisk beetles on flycatcher nesting success and habitat selection will be monitored through 2010. Two flycatchers nesting in the area were previously banded in Nevada along the Virgin River upstream from Lake Mead. Additionally, breeding was discovered in a third site in 2008 along the Virgin River where floodplain and riparian restoration efforts were conducted in 2006 / 07. A final technical report on willow flycatcher nesting and recommendations for enhancing flycatcher habitat will be completed followed the 2010 field season.

Budget Estimate: $30,000

Literature Cited:

Johnson, K, P. Mehlhop, C. Black, and K. Score. 1999. Reproductive failure of endangered Southwestern Willow Flycatchers on the Rio Grande, New Mexico. Southwestern Naturalist 44:226-231.

Sedgwick, J.A. 2000. Willow Flycatcher (*Empidonax traillii*). *In* A. Poole and F. Gill, editors, The Birds of North America No. 533. The Birds of North America, Inc. Philadelpha, PA.

Sedgwick, J.A., and W.M. Iko. 1999. Costs of Brown-headed Cowbird parasitism to Willow Flycatchers. Studies in Avian Biology 18:167-181.

Whitfield, M.J., and M.K. Sogge. 1999. Range-wide impact of Brown-headed Cowbird parasitism on Southwestern Willow Flycatcher (*Empidonax traillii extimus*). Studies in Avian Biology 18:182-190.

Whitfield, M.J., K.M. Enos, and S.P. Rowe. 1999. Is Brown-headed Cowbird trapping effective for managing populations of the endangered Southwestern Willow Flycatcher? Studies in Avian Biology 18:260-266.